25. A method of recording/reproducing an information signal onto/from N types (where N ≥ 2) of optical discs 1 having first layers of different thicknesses (col. 4, lines 6-8; Figs. 4A, 4B), each of said optical discs 1 having at least said first layer which is transparent and a second layer (Figs. 4A, 4B) which is for storing information, said method comprising:

(a) emitting a light flux from a semiconductor laser (col. 4, line 14),

(b) converging said light flux on said second layer of one disc of said N types of optical discs by employing a converging optical system (col. 28, lines 47-52) having at least one of (i) different effective numerical apertures (col. 28, lines 47-52), (ii) different focal distances (col. 6, lines 20-21), and (iii) different working distances (col. 6, lines 20-21), wherein said converging optical system selects one of (i) a particular one of said different effective numerical apertures, (ii) a particular one of said different focal distances, and (iii) a particular one of said different working distances in accordance with the thickness of said first layer of said one disc of said N types of optical discs (col. 28, lines 47-52; col. 6, lines 7-19),

(c) receiving said light flux reflected from said one disc 1 by a photo detector 9, and

(d) generating a reproduction signal from said photo
detector 9 in accordance with said received light flux (signal
processing means 19).

26. The method according to claim 25, further comprising
discriminating the type of said one disc 1 among said N types of
optical discs 1 by said reproduction signal from said photo
detector 9 (col. 4, line 48 *et seq.*).

27. The method according to claim 25, wherein said
converging optical system (col. 28, lines 47-52) comprises an
objective lens (col. 4, line 14) and said working distances are
defined as the distance between a surface of a said optical disc
and the nearest surface of said objective lens ((Figs. 4A, 4B);
col. 4, line 14; col. 6, lines 20-21).

28. The method according to claim 26, wherein step (b)
comprises operating said converging optical system (col. 28,
lines 47-52) to converge said light flux as a spot with a smaller
diameter D by employing one of (a) a larger one of said effective
numerical apertures, (b) a shorter one of said focal distances
and (c) a shorter one of said working distances, with respect to
one of said optical discs having a thinner one of said first
layers (col. 28, lines 47-52; col. 6, lines 7-19) in accordance
with a result of said step of discriminating (col. 4, line 48 *et
seq.*) the type of said one disc 1 among said N types of optical

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discs 1 by said reproduction signal from said photo detector 9 (col. 6, lines 7-19).

29.   The method according to claim 25, further comprising operating a signal processing unit 19 to generate, responsive to one of (i) receipt of said reproduction signal from said photo detector 9 and (ii) receipt of recording data for recording on said one disk 1, a signal for performing one of a reproducing operation and a recording operation on said one disc; and controlling generation of the output signal of said signal processing unit 19 (system controlling means 22).